EYE BANK ASSOCIATION of AMERICA

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EYE BANKING ACTIVITY - 1986

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Facts About Eye Donation and Corneal Transplantation

The cornea, the clear surface at the front of the eye, is the main focusing element of the eye. If the cornea becomes cloudy from inherited disease, injury, infections, chemical burns, congenital disease, or many other causes, vision can be dramatically reduced. Not all donated eyes have corneas suitable for transplant. Sometimes a cornea may not be suitable for transplant because of the donor's medical history, or the cornea may have lost much of its opacity.

All eyes not used for transplant are used for valuable research or teaching programs. Human eyes are vital, and in many cases have no substitute, for the study of many ophthalmic problems, such as diabetes, glaucoma and retinal disease. An eye donation sometimes can be used for more than one purpose with the cornea being used for transplant and the rest of the eye for valuable research or training.

Overview of Statistics

In 1986, the 103 eye banks in the United States and Canada collected a total of 67,599 eyes and corneas (44,686 were whole eye donations while 22,913 were cornea-only donations). A record number of 31,340 corneas was supplied for transplant.

In 1985, 29,089 eyes were used for research and teaching programs. Another 7,387 corneas were provided for epikeratophakia, a surgical procedure that corrects refractive errors for patients with high degrees of vision loss. Of the total number of eyes and corneas donated, 46 percent were used for corneal transplants, 43 percent for research and teaching, and 11 percent for epikeratophakia.

The amount of eyes obtained in 1986 was a 22.0 percent increase over the previous record established in 1985. Much of this progress is due to increased public support for organ and tissue donation, especially in the growing number of states with laws requiring that the option of organ and tissue donation be considered in cases of hospital deaths (29 at this writing). In 1986, a record number of 31,340 corneas was supplied for transplant, 5,337 (20 percent) more than the previous record total established in 1985. Despite this progress, between 3,500 and 5,000 Americans still were waiting for transplants as of January 1, 1987 because of a shortage of donated corneas.

Table 1: Total Donations

	1985	1986
Whole Eyes	35,076	44,686
Corneal Only	20,528	22,913
All Donations	55,604	67,599
Corneal Grafts	26,326	31,340
Epikeratophakia	2,600	7,387
Donations for Research, Training	25,294 (96 eye banks)	29,089 (103 eye banks)

Variations in Activity Among Eye Banks

Eye banks vary greatly in the size of their territory, population, programs, staff, board of directors and medical advisors. The data in Table 2 support these differences.

Table 2: Total Eye and Corneal Donations Obtained by Eye Banks

	Number of Eye and Corneal Donations					
	0-99	100-299	300-599	600-999	1000-1999	2000+
# of Eye Banks 1985 (n=96)	19	21	30	13	8	5
% of Tot.Donations	1.6%	7.2%	21.4%	19.8%	19.4%	30.8%
# of Eye Banks 1986 (n=103)	19	23	28	13	13	7
% of Tot.Donations	1.3%	6.0%	17.9%	14.2%	29.7%	30.9%

The above figures indicate several trends:

(1) The number of small eye banks slowly is declining. In 1986, 66 percent of the eye banks obtained fewer than 600 donations, versus 73 percent in 1985.
(2) A signficant proportion of the eye banks (18 percent in 1986 versus 20 percent in 1985), still is obtaining less than two percent of the total eyes and corneas donated.
(3) 1986 brought a large increase in the percentage of eye banks obtaining 1,000 or more total eye and corneas (19 percent versus 14 percent in 1985).
(4) In summary, although a significant number of eye banks is obtaining a small volume of eyes, the trend is moving toward more eye banks becoming larger.

Comparison By Number of Grafts Performed

The demand for corneas for transplant varies greatly among the areas served by the various eye banks. Listed below are data for eye banks showing corneas used locally for transplant. The distribution of these changed significantly from 1985 to 1986 as more eye banks now are in the middle and largest categories.

Table 3: Eye Banks by Number of Grafts Performed Locally

	Number of Grafts				
	0-49	50-199	200-499	500-999	1000+
# of Eye Banks 1985 (n=96)	27	43	20	3	3
%of Eye Banks	28.1%	44.8%	20.8%	3.1%	3.1%
# of Eye Banks 1986 (n=103)	16	42	32	9	4
% of Eye Banks	15.5%	40.8%	31.1%	8.7%	3.9%

Eye Banks Sharing Corneas for Transplant

The first priority for the use of corneas, except in cases of emergency surgery, is in the local area where they are donated. Corneas are shared with other eye banks or corneal surgeons when a temporary surplus or a need exists. Corneas have to be transplanted within a week to 10 days after donation, depending on the method of storage. Unlike for organs, corneas, in over 90 percent of the cases, do not require tissue typing, so matching a cornea with a recipient is not as difficult.

A total of 21,050 of the eyes and corneas donated locally was used locally in corneal transplants, (a 10 percent increase over the 19,198 local transplants from tissue obtained locally in 1985). A total of 9,728 corneas was shared in 1985 (33.6 percent of surgical tissue), versus 10,290 corneas shared in 1986 (32.7 percent of surgical tissue). As in 1985, the majority of the shared corneas is shipped by a small number of eye banks. In 1986, the six eye banks sharing over 300 corneas accounted for 61.2 percent of the total, versus 64.8 percent by that group in 1985.

Of the 10,290 corneas shared for transplant, available distribution data (n=9,497) indicate 7,555 (80 percent) were shared in the United States and Canada, and 1,942 (20 percent) were shared outside of that area. The trend is toward more eye banks sharing a larger amount of corneas, although nearly half annually share fewer than 20.

Table 4: Eye Banks by Number of Corneas Shared for Transplant

	Corneas				
	0-19	20-49	50-99	100-299	300+
# of Eye Banks 1985 (n=96)	51	10	15	13	7
% of Eye Banks	53.1%	10.4%	15.6%	13.5%	7.3%
# of Eye Banks 1986 (n=103)	47	22	6	16	12
% of Eye Banks	45.6%	21.4%	5.8%	15.5%	11.7%

Eye Banks Receiving Shared Corneas

Eye banks receive shared corneas for surgery from another eye bank during those times when the local supply of corneas does not meet the local need. The distribution of those receiving shared corneas in 1986 nearly mirrors that in 1985. The percentage of shared corneas between these groups, however, is much different. For example, those who received over 200 shared corneas accounted for 40.0 percent of the total shared in 1985 versus 30.3 percent in 1986.

Table 5: Eye Banks by Number of Shared Corneas Received For Surgery

	Number of Grafts				
	0-19	20-49	50-99	100-199	200+
# of Eye Banks 1985 (n=96)	51	17	13	10	5
% of Eye Banks	53.1%	17.7%	13.5%	10.4%	5.2%
# of Eye Banks 1986 (n=103)	55	20	14	10	4
% of Eye Banks	53.4%	19.4%	13.6%	9.7%	3.9%

Limitations of This Report

Two eye banks did not report data, so their 1985 data were used. If available, this data would increase the total figures by less than two to three percent. All data are self-reported by each eye bank, so data are not included from other procurement agencies which obtain eyes or from physicians who obtain or receive eyes without using their local eye bank.

Conclusion

The purpose of eye banks is to have corneas readily available for anyone who needs a transplant, as well as to continue to supply tissue for valuable research and teaching programs. The improvements in eye banking in the 1980s, coordinated by the Eye Bank Association of America and eye banks, have greatly increased the number of people who can see due to corneal transplants and refractive surgery. Eye banking also has been assisted by the growing public support for organ and tissue donation, as evidenced by the the growing number of states with laws requiring that the option of organ and tissue donation be considered in cases of hospital deaths (29 at this writing). As more of these laws go in effect, expectations are that the number of eye donations will grow substantially.

The EBAA will continue to develop programming to maintain quality control in eye banking; to enhance public and professional education; to improve networking among eye banks; and to strengthen smaller eye banks. This dedication will assist eye banks in obtaining the large amount of tissue needed to eliminate the waiting list for sight-restoring surgery and to assist researchers in the discovery of treatments and solutions for many sight-hindering conditions.

1986 ACTIVITY REPORT

APPENDIX I

(ALPHA BY STATE) CITY	TOTAL WHOLE EYES	TOTAL CORNEAS	TOTAL EYES & CORNEAS	LOCAL GRAFTS	LOCAL RESEARCH	TOTAL CORNEAS SHARED	EPI TISSUE	RESEARCH EYES SHARED	SHARED CORNEAS RECEIVED	LOC SURG TISSUE 86
BIRMINGHAM	999	0	999	566	36	200	170	27	215	766
SHEFFIELD	89	0	89	1	38	14	11	25	0	15
TUSKEGEE *	2	0	2	1	0	0	0	0	1	1
PHOENIX	1075	10	1085	227	341	170	53	592	135	397
LITTLE ROCK-EYE&KIDNEY	111	0	111	38	69	4	0	0	27	42
LITTLE ROCK-ARK. EYE BK	91	0	91	62	26	3	0	0	168	65
FRESNO	40	283	323	53	21	216	0	11	NA	269
LOMA LINDA	152	1817	1969	185	75	474	825	260	0	659
LOS ANGELES-DOHENY	982	2242	3224	1053	705	542	924	0	0	1595
LOS ANGELES-UCLA *	376	0	376	8	368	0				8
ORANGE COUNTY	122	509	631	143	162	179	106	41	0	322
SACRAMENTO	434	0	434	161	153	68	0	41	44	229
SAN DIEGO	531	1353	1884	463	428	343	551	150	25	806
SAN FRANCISCO	784		784	357	427	33	5	0	80	390
DENVER-COLORADO	58	79	137	64	58	5	0	0	25	69
DENVER-ROCKY MT	231	372	603	309	181	63	17	24	19	372
NEW BRITAIN	471	180	651	210	438	1	0	2	4	211
DELAWARE	219	216	435	73	4	47	124	183	24	120
DIST. OF COL. - LIONS	240	72	312	70	210	32	0	4	8	102
DIST. OF COL. - TBI	26	65	91	4	6	27	11	26	37	31
GAINESVILLE	429	4	433	223	263	10	0	0	68	233
MIAMI	682	1490	2172	1169	650	336	0	0	0	1505
ORLANDO	652	663	1315	332	121	203	439	200	6	535
TAMPA	446	336	782	177	228	348	38	2	138	525
ATLANTA	1120	547	1667	659	856	152	0	0	60	811
AUGUSTA	167	0	167	69	46	30	0	141	18	99
HONOLULU	48		48	42	4	0	0	0	60	42
BOISE	167	0	167	52	80	24	3	8	2	76
BLOOMINGTON	133	0	133	26	24	48	0	77	0	74
CENTRALIA	64		64	12	31	21	0	0	0	33
INDIANAPOLIS-LIONS	333		333	141	178	4	0	5	2	145
INDIANAPOLIS-METH. HOSP	14	106	120	82	34	6	0	6	22	88
IOWA CITY	551	0	551	215	368	9	16	0	38	224
KANSAS CITY-KS	291		291	87	155	32	0	0	6	119
WICHITA	128	0	128	61	67	0	0	0	29	61
LEXINGTON	106	457	563	158	301	104	0	0	20	262
LOUISVILLE	59	135	194	66	65	63	0	0	1	129
BATON ROUGE	36	32	68	24	34	0		10	33	24
NEW ORLEANS	234	199	433	244	157	31	0	1	329	275
SHREVEPORT	61	251	312	96	101	82	31	0	4	178
BALTIMORE	1909	1351	3260	238	1410	877	649	60	30	1115

APPENDIX I - Page 2

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BOSTON	791	19	810	467	324	0	0	0	119	467
ANN ARBOR***	2133	1649	3782	1820	1381	172	409	10	10	1992
MARQUETTE	30		30	1	23	2	0	4	11	3
MINNEAPOLIS	643	0	643	238	405	2	0	0	72	240
ROCHESTER-MN	162	22	184	86	87	11	0	0	1	97
JACKSON	198		198	165	30	3			20	168
COLUMBIA-MO	337	0	337	106	217	14	0	0	44	120
KANSAS CITY-MO	686		686	198	345	21	0	129	4	219
ST. LOUIS-ARC	426	0	426	150	150	1	0	0	19	151
ST. LOUIS EYE BANK	654	0	654	147	497	0	0	10	80	147
LAS VEGAS		104	104	49	0	45	0	10	0	94
NEWARK	354		354	137	217	0	1	0	100	137
ALBUQUERQUE	101		101	23	34	3	2	32	119	26
ALBANY	240	0	240	58	164	10	0	8	1	68
BUFFALO	535		535	127	336	41	8	23	10	168
NEW YORK CITY	1702	0	1702	780	873	39	0	0	593	819
ROCHESTER-NY	1657	0	1657	55	591	469	74	468	0	524
SYRACUSE	550	0	550	119	362	44	0	16	5	163
WINSTON-SALEM	1043	90	1133	543	337	107	16	62	5	650
WILLISTON			0							0
CINCINNATI	88	342	430	203	183	42	2	0	3	245
CLEVELAND	778	742	1520	416	462	65	362	8	57	481
COLUMBUS	316	114	430	166	245	19	0	0	163	185
DAYTON	256	483	739	176	225	250	39	34	2	426
YOUNGSTOWN*	35	0	35	44	0	0	0	19	28	44
OKLAHOMA CITY	285	0	285	215	91	0	21	0	265	215
PORTLAND	2169	0	2169	268	1381	219	297	42	3	487
ERIE	143		143	16	24	21		48	3	37
PHILADELPHIA	1154		1154	370	530	0	241	13	71	370
PITTSBURGH	502	0	502	213	282	0	7	0	62	213
HATO REY	0	196	196	107	0	0	0	0	0	107
WEST COLUMBIA	249		249	66	183				28	66
SIOUX FALLS	44	0	44	10	14	18	0	2	0	28
CHATTANOOGA	80	6	86	48	27	10		1	74	58
KNOXVILLE	161		161	93	42	16	0	12	36	109
MEMPHIS	384	0	384	244	142	1	0	0	58	245
NASHVILLE	42	139	181	93	48	36	0	2	156	129
ABILENE	10	0	10	0	0	3	0	4	5	3
AMARILLO	51		51	21	3	23	9	0	13	44

APPENDIX I - Page 3

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AUSTIN	76	480	556	188	92	237	20	0	0	425
CORPUS CHRISTI	80	212	292	63	14	61	85	32	44	124
DALLAS	107	748	855	537	148	170	0	10	14	707
EL PASO	6	165	171	84	19	7	4	0	7	91
FORT WORTH	52	382	434	121	75	127	58	3	2	248
HOUSTON	1204	2867	4071	782	953	1387	726	127	0	2169
LACKLAND AFB	42		42	0	24	10	0	0	4	10
LUBBOCK			0	5	24	7	0	0	47	12
SAN ANTONIO	126	605	731	201	133	384	13	16	2	585
TEMPLE	38	16	54	18	29	1	6	0	0	19
TYLER		19	19	10	0	4		2	3	14
SALT LAKE CITY	452	0	452	343	71	22	8	8	29	365
NORFOLK	343	36	379	58	217	136	4	44	111	194
RICHMOND	220	236	456	178	210	22		220	14	200
ROANOKE	114	0	114	32	82	0	0	0	78	32
SEATTLE	1970		1970	435	680	104	380	371	85	539
WEST VIRGINIA	16	445	461	140	8	108	171	34	76	248
MADISON	2236		2236	162	963	449	444	218	1	611
MILWAUKEE	1386		1386	207	1143	45	0	12	21	252
ALBERTA	438		438	242	197	9	3	0	14	251
SASKATOON	28	27	55	22	27	4	0	0	2	26
TORONTO	1639		1639	753	750	481	0	0	0	1234
VANCOUVER	461		461	210	226	7			5	217
*1985 DATA										
***CHICAGO DATA, TOO										
SUMMARY FIGURES	44686	22913	67599	21050	25319	10290	7383	3950	4627	31340

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